Cooperative Intersection Collision Avoidance Systems (CICAS)

What It Is

CICAS is a four-year Intelligent Transportation Systems (ITS) program partnership between the U.S. Department of Transportation (USDOT), automobile manufacturers and State and local departments of transportation. Its purpose is to develop vehicle-infrastructure cooperative systems that address intersection crash problems related to stop sign violations, traffic signal violations, stop sign movements and unprotected signalized left turn movements.

The goal of CICAS is to facilitate the implementation of cooperative intersection safety systems that effectively reduce the number of intersection crashes. In 2003, more than 9,500 Americans died and roughly 1.4 million Americans were injured in intersection related crashes.

There are three operational concepts for CICAS being researched:

- CICAS-Violation (CICAS-V): a system that warns the driver via an in-vehicle device when it appears likely that the driver will violate a traffic signal or stop sign.
- CICAS-Stop Sign Assist (CICAS-SSA): a system that uses a Dynamic Message Sign (DMS) to tell drivers on the minor road when it is unsafe to enter the intersection due to insufficient gaps in traffic on the main road.
- CICAS-Signalized Left Turn Assist (CICAS-SLTA): a system that uses a DMS or in-vehicle sign to tell drivers when it is unsafe to make an unprotected left turn at a signalized intersection.

The CICAS-V system is being developed under a partnership agreement with automobile manufacturers, and the primary objective is to develop an effective prototype that is suitable for deployment. The CICAS-SSA project is being conducted under a partnership agreement with Minnesota DOT and its research partner, University of Minnesota. CICAS-SLTA is being conducted under a partnership agreement with California DOT and its research partner University of California Partners for Advanced Transit and Highways (PATH) Program. The primary objectives of these last two projects are to develop system designs for prototyping and field operational testing.

Current Status

- A CICAS-V ConOps has been developed, and comments from the industry are being incorporated.
- The National Highway Traffic Safety Administration has performed a detailed analysis of the crash problems which CICAS will address. Publication is forthcoming.
- USDOT is meeting periodically with stakeholder groups (State & local DOTs, traffic signal manufacturers and operators) to ensure that CICAS can be safely integrated with existing and planned systems.

The Year Ahead

- Prototype CICAS-V systems testing begins at intersections in California, Michigan and Virginia.
- Initial concept, alert-timing development and simulator studies will be conducted for CICAS-SSA.
- Initial concept and observational research studies will be conducted for CICAS-SLTA.

For more information go to: http://www.its.dot.gov/cicas/index.htm